

## ABSTRACT

A method of generating a dither matrix for an output device having sub-pixel addressability that permits the attenuation of tone for less than whole pixels. An original representative pixel grid is expanded to a super-resolution by replication of the pixel grid in both directions by the sub-pixel factor S. Halftoning methods for generating dither patterns are then applied using the super-resolution grid to create dither or filter outputs, which are converted to a corresponding output for a sub-pixel resolution grid. Selection of location for incremental addition (deletion) of tone is made using the sub-pixel grid output. The cycle of output generation, conversion to sub-pixel resolution, and tone modulation selection is repeated iteratively until a desired gray level is reached. The process is further repeated for each desired gray level to produce the multiple dither patterns that comprise the desired dither matrix.